

# Framon FRA-2D Instruction Manual



To be used in conjunction with the Framon Depth & Space Manual,  
Volume 12, April 2004.

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**IMPORTANT: DO NOT force the depth or space cranks when zeroing the machine.  
Damage to the chassis may result.**

## **Framon Model #2-D Instruction Manual**

Thank you for purchasing a Framon #2-D code machine! Your new machine will give you years of trouble-free service by following the instructions in this manual & using common sense with the machine. Please read this manual thoroughly and understand how to use the machine & maintain it to ensure a long service life.

With your purchase of a Framon #2-D, you are entitled to a free Genericode Me code program and two free cutters. Return your warranty card, a copy of your distributors' invoice, and the enclosed paper and we will send your free items upon receipt, assuming all information is filled out correctly.

As much of the information found in this manual is similar to that for the Framon #2 Code Machine, you will be directed at times to read sections of that manual for more information. These instructions refer to page numbers in the **April 2004 Depth & Space Manual, Volume 12** which should have accompanied your machine. This insert will highlight the different aspects of the machine & different procedures for cutting keys.

A new feature we have added to the #2D is the ability to utilize depth & space cams to originate keys even quicker. Your machine comes equipped with Schlage cams when new. See the section below on using the machine with cams for more information.

## **Connecting The Machine To A Power Supply**

The Framon #2-D can be equipped with a 110V AC, 220V AC, or 12V DC Motor. If your machine is equipped with the 110V motor, plug the machine into a properly grounded outlet. If you are planning on using an inverter, we recommend a minimum of 2000-Watt continuous, 4000-Watt peak.

If you had your machine equipped with the 220V AC motor, you will need to attach a plug to the end of the cord.

For 12 V DC users, you can attach a cigarette lighter plug on the end of the cord (the motor draws 9 amps) or wire the machine directly into your vehicle's circuits.

## **Using The Indicators**

The digital readouts (called DRO's) indicate the position of the carriage in relation to a zero position. The indicators can be used in US measurement mode (thousandths of an inch) or in metric mode, displaying millimeters. To change the display, press the blue "inch/mm" button.

The first time you use the machine, you should zero the spacing and depth. To do this, turn the spacing crank clockwise until you reach a positive stop. Make sure the indicator is on, and press the “Zero” button. The readout will now show “0.000”. Do the same with the depth indicator (the depth indicator must be turned counter-clockwise instead of clockwise to zero it). As stated above, do NOT exert excessive pressure on the cranks when zeroing the machine!



When using the machine, you should always attempt to dial “to” a number; that is, dial from a lower number to the higher one. If your depth is indicating .315” and you need to set it to .290”, go about .005” beyond .290” to .285” or so, then dial to .290”.

When not using the machine, we suggest you turn the indicators off. They will retain their positions when the display is off, and even when the crank is turned. You should not need

to zero the machine between each key.

If you need to change batteries in one of the displays, slide the cover off in the direction shown by the arrow. There are two spare batteries included in the drawer below the machine. If you need replacements, you can obtain them from any retail store that sells watch batteries. The battery type is an LR-44 or AG-13.

## Depth & Space Manual

Please read pages 27-29 for an explanation of the conventions used with our charts.

The manual contains hundreds of depth & space charts for cutting cylinder, automotive, padlock, antique, safe deposit and mailbox keys. Depth & space measurements from any source can be used with the 2-D; however, some codes are written tip to bow, and others have measurements taken from the tip of the key back to the bow. All keys cut on the FRA-2D must be measured from bow to tip. If you are cutting a Kaba code of 126964, for example, the “4” cut would be cut closest to the shoulder. Before cutting the key on the 2D, you must reverse the cuts to reflect bow to tip cutting.

For tip-stopped keys, many code programs will show the measurement from the tip of the key to the first cut at the bow. This number must be converted before you will be able to cut the key on the 2-D machine. If the key can be aligned with the tip of the key **flat** at the left side of the vise (illustration page 34), subtract the tip to first cut measurement from 1.250” (the width of the vise). For example, a GM 10 cut key has the first cut at the bow 1.034” from the tip of the key. Subtract 1.034” from 1.250” and your starting cut position will be .216”. All measurements in the Framon Depth & Space Manual reflect the correct starting cut for the first cut at the bow of the key.

You will not use any of the “spacing block” information; this is for Framon #2 owners only. When cutting a key, use the progressive spaces listed below the chart for cut positions and the depths listed at the right for depth settings.

If a key is too short to reach the left side of the vise, you can use the square end of the tip stop to offset the starting cut by .350” (see page 34 for illustration). A Chrysler “J” code key has a tip to first cut position of .849”. This key can be cut by aligning the tip of the key with the left side of the vise and starting your cut at .401 (1.250 - .849) or by using the Ford tip stop and starting your cut at .051” (1.250 - .849 - .350). Either way will align the key properly. Remember, you will only have to use these calculations if your code program does not have the Framon conversion already done. Genericode Me or Genericode DOS will show the correct Framon #2-D starting cuts as long as you have chosen “Framon Manual” from the Application Setup screen.

### **Space & Depth Settings**

Horizontal motion will be referred to as spacing. The spacing crank on the right side of the machine controls spacing. Vertical motion is referred to as depth. The crank on the front of the machine controls depth. One revolution of either crank will give .050” of movement in the direction turned.

These two movements have nothing to do with the actual cutting of the key blank. They are used to set the depth and space settings that are required. The feed handle at the left side of the machine controls the actual cutting. When depth and space has been set, the feed handle is pulled and the entire unit is moved into the cutter and against a fixed stop. When the unit bottoms out against the fixed stop, and the desired cut has been made, release the feed handle. This will allow the entire unit to return to its’ original position, ready for the next setting.

Use a smooth, steady motion when cutting. Jamming the key against the cutter or using too much pressure will lessen cutter life. A good rule to remember is GIVE THE CUTTER TIME TO CUT!

### **Key Vise & Blank Insertion**

See page 30.

### **To Cut A Cylinder Key Using The Digital Readouts**

This example will explain the steps required to cut a Schlage key with cuts of 25751.

From our Depth & Space Manual chart for Schlage, we find the following information:

Starting Cut is .231”

Spacing between cuts is .156”

Progressive spacings are .231, .387, .543, .700, .856, 1.012

Depths: 0-.335, 1-.320, 2-.305, 3-.290, 4-.275, 5-.260, 6-.245, 7-.230, 8-.215, 9-.200

Both cams must be turned to the “locked” position when cutting keys using the digital readouts. Rotate the depth crank cam until the plunger drops into the cavity on the cam (the plunger is located on the bottom side of the depth shaft). Do the same with the space cam. You should not be able to rotate the cams when they are in the locked position.

We will assume that the machine has not been “zeroed out” as of yet. To do this, turn the spacing and depth cranks until they reach a positive stop (clockwise for the spacing crank, counterclockwise for the depth). Turn on both indicators and press “Zero”. Both indicators should show “0.000” in the display. Be sure both are indicating inches and not millimeters.

Many new users ask about the proper cutting wheel to use. You can use the FC8445 cutter for almost any key in the manual unless there is a note below the chart to use another cutter. Keys such as Medeco will require a special cutter, whereas keys like Assa and Kaba should have the correct cutter installed, although the key will work with the standard cutter.

If your machine was already zeroed out, you could begin by turning on the displays and going directly to the first space and depth setting.

With the indicators zeroed, our chart shows that the first cut on the key is at .231”. Rotate the spacing crank counterclockwise until 0.231” shows in the display. Our first depth is a “2”, which is .305” according to our chart. Turn the depth crank until 0.305” shows in the display.

NOTE: The indicators will actually show a small “5” at the right of the display. This indicates “half-thousandths” of an inch. You do not need to be concerned if the “5” is displayed, only that the first three digits are correct. Also, the spacing indicator shows a negative reading; this is normal.

With the space and depth set properly, turn on the machine and feed the key into the cutter with the feed handle. As stated above, a smooth, steady cut will assure long cutter life. Pull on the feed handle until a positive stop is reached. The first cut is now made.

Turn the spacing crank until the second space (.387”) is shown in the display. Set the depth indicator to the proper depth (.260” for a “5” depth) and feed the key into the cutter again. The second cut is now made. You may find it quicker to now skip to the fourth position (.700”) and feed the key into the cutter again, as the depth is the same as what was just made in the second position. You can then go back and make the third and fifth cuts in the same way.

With all five cuts made on the key, you should remove the key from the vise and remove the burrs using the built-in brush on the side of the machine.

## Cutting A Schlage Key Using The Depth & Space Cams

To cut a key using the depth & space cams, you will need to “unlock” them before they will rotate. To unlock the space cam, you will need to move the carriage to the left (by rotating the spacing crank counterclockwise) until the cutter is in line with the left side of the vise. Pull the table to the left and rotate the cam by hand. Rotate the cam to the #1 space position. If the cam will not turn to the #1 space position, you will need to crank the carriage farther to the left. Spring tension will hold the cam in place. To unlock the depth cam, pull gently out on the cam and rotate it ¼ turn. You will be able to rotate the cam freely. If you turn the cam outside of the range of the cuts, the cam will lock back in.

The cams need to be adjusted before use. To adjust the depth cam, turn the cam to the HIGHEST cut (for Schlage, the highest cut is a 0 depth, which measures .335”). Turn the depth dial until it reads .335”. The depth cam is now ready to use (be sure not to turn the depth crank when using the cams or the machine will be out of adjustment). To adjust the space cam, turn the space cam to the #1 cut position. Next, turn the space crank back to the stop (“zero” position) and then to the first cut position listed in our depth & space manual (for Schlage, the starting cut is .231”). The space cam is now adjusted. Again, be careful not to turn the space crank while using the cams or the machine will be out of adjustment. We recommend that when using the cams you remove the cranks with an allen wrench to avoid changing the machine settings. You can also turn off the indicators during cam usage.

**NOTE:** When using the cams, you will notice that the machine will not read exactly the same each time. If you zero out the depth cam to .335”, cut a key with various cuts and go back to the #1 depth, the indicator will not read .335”. This is due to backlash in the threads. This is normal, and the machine will make the correct cut on the key regardless of the indication. This only applies when using the space and depth cams. You may find it easier to turn off the indicators after zeroing out the cams.

If you are cutting a Schlage key and wish to use the space and depth cams, simply turn the space cam to the appropriate space position (for the first cut, turn the cam to the “1” position), turn the depth cam to the proper depth (for the key above, turn the depth cam to “2”) and feed the key into the cutter.

If you are using original pins or need to maximize the use of change keys that make full use of the MACS in a system, you may need to use the manufacturers recommended cutter. If you do not understand cutter requirements, feel free to contact us.

For a full list of available cams for the Framon #2D, see the chart at the end of the instruction manual.

**IMPORTANT: NEVER cut large quantities of keys without checking machine adjustment periodically.**

## **Cutting Medeco & Emhart Keys**

The procedure for cutting keys with angled cuts is identical to that of standard cylinder keys. When a right or left cut is required, simply loosen the lock knob on the top of the machine and angle the cutter to the proper direction, at the positive stop. Tighten the lock knob and make your cut. The center position has a slight detent to indicate that the cutter is in the middle position. Medeco Bi-Axial positions are shown on the face of the guard. The left and right positions do not have a detent; there are two positive stop positions for the spindle housing to touch.

## **Using The Spacing Clip**

Included with your #2D machine is a small spacing clip for shoulderless keys such as Ford, Best, Kaba, and many double sided automotive keys. See page 34 in the Depth & Space Manual for information regarding usage of the spacing clip.

## **Cutting Safety Deposit Box and Flat Keys**

If you plan on cutting safety deposit or flat keys on the #2D, you should select a slotting cutter as one of your free cutters when you register the machine. You will not be able to originate these keys without a slotting cutter! We recommend the DBC1045 (carbide) or FFS1045 (high speed steel) as a good, all-purpose slotter.

The #2D machine makes cutting safety deposit keys a simple procedure. For our example, we will cut an S & G #4440 key with a combination of 624135.

- Remove the cylinder cutter from the machine. See Instructions below for more information on cutter changes.
- Install the FFS1045 or DBC1045 cutter on the machine (you may install a different cutter; widening may or may not be required)
- Rotate the spacing crank clockwise until the left edge of the key vise is to the right of the slotter.
- Insert a key blank into the vise. Pull the carriage forward and slide the key blank up against the edge of the cutting wheel. If you are using a blank with a notched or rounded tip, use the flat side of the blank, not the rounded edge, as all measurements are taken from the flat edge of the key. Tighten the vise.
- Zero the spacing indicator. Turn the spacing crank counterclockwise .0225" (half the cutter width; if you are using a wider or narrower cutter you should adjust this dimension). Zero the spacing indicator again. The center of the cutter should now be lined up with the edge of the key.
- The first spacing measurement for the S & G #4440 is .170 from the tip of the blank. Turn the spacing crank counterclockwise to .170, set the depth indicator (zero if you haven't already done so previously) to .200 (#6 depth) and feed the key into the cutter. To widen the cut (cuts must be .065" wide, therefore we need an additional .010" on each side of the cut), turn the spacing crank to .160" and

make a cut. Turn the spacing crank to .180 and make another cut. If we were using the .066" slotter widening would not be necessary.

- Rotate the spacing dial to .222", set the depth to .280 (#2 depth) and make the second cut. Widen as described above at .212" and .232". Continue this procedure until all six cuts are made.
- If a throat cut needs to be made, rotate the spacing dial to the correct space position and set the depth as described in the drawing.

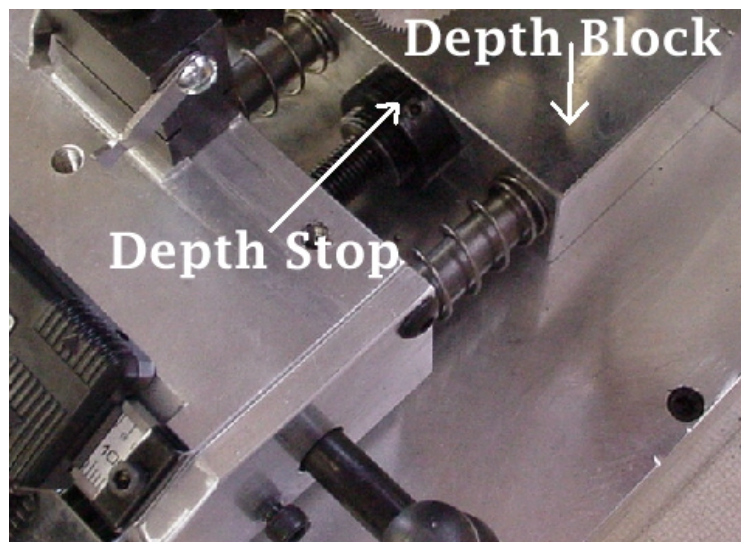
**Please read page 40 in the Depth & Space Manual for more information on our cutting wheels and lubrication of the machine.**

## **Adjustments**

If adjustments are ever needed, follow the procedures below for adjusting the depth and spacing of the machine. Also, tension on the cranks can be adjusted to personal preference by following the instructions below.

### **Depth Adjustments**

To adjust the depth on the FRA-2D, make a cut on a key (Kwikset or Dexter blanks work best as the blade is centered in the keyway) and measure the depth with calipers. You will have to remove the chip guard attached to the carriage by removing two 1/8" allen screws. The adjustment for depth (depth stop) is located behind the carriage, in between the slide rods. As you pull the carriage forward, the carriage stops when it comes in contact with the black depth stop. To make the FRA-2D cut deeper, use the 3/32" allen wrench to loosen the set screw located in the depth stop and turn the stop to the right. To cut shallower, turn the stop to the left. The stop has threaded holes in several positions. Make another cut on the key and measure until the machine is cutting to the proper depth.

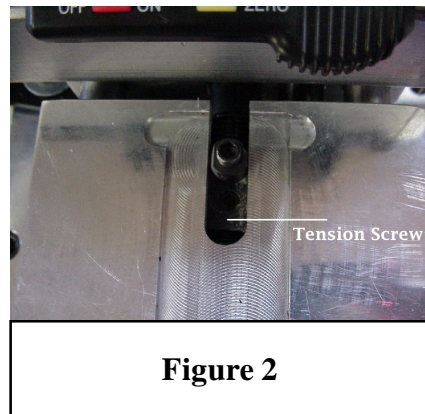
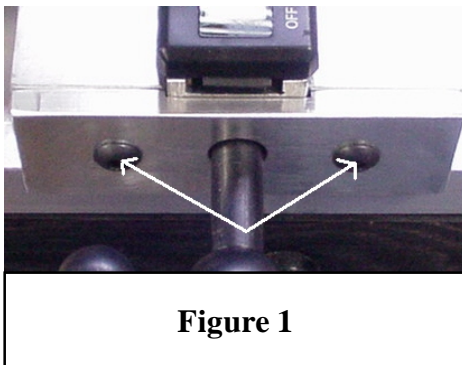




## Adjusting Depth Crank Tension

If you prefer more or less tension on the depth crank, you can adjust it as follows:

1. Loosen the two screws holding the depth readout (do not remove, see figure 1 below)
2. Lift up on the depth digital readout and pull it towards you; it should easily slide off of the machine. You will see two screws underneath (see figure 2 below)
3. Tighten or loosen the tension screw based on your preference.
4. Replace the readout. You will see a cavity in the bottom of the readout that the other Allen screw must fit into.
5. Tighten the two screws you loosened in step 1.



## Spacing Adjustments

Adjusting the spacing is a simple procedure. The small spacing adjustment screw is the stop for the carriage; turning it clockwise will establish a starting point closer to the shoulder or head of the key. Turning it counterclockwise will establish a starting point closer to the tip of the key. Like the depth adjustments above, you can “use” your readout to precisely adjust how many thousandths of an inch the machine is adjusted.

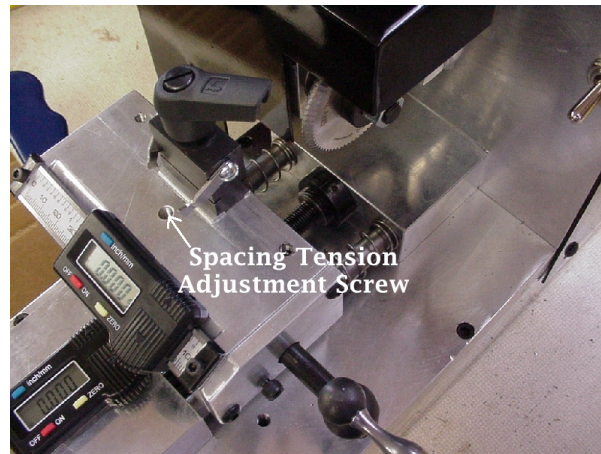
Start the adjustment by turning the spacing crank clockwise until it reaches the stop. Make sure the readout shows zero; if not, zero the display by pressing the appropriate button.

If your machine needs to cut closer to the tip of the key, turn the stop screw counterclockwise. Rotate the spacing crank clockwise until the desired amount of adjustment is shown in the display. Turn the adjustment screw clockwise until you can feel it stop. Re-zero your display.

If your machine needs to cut closer to the head of the key, loosen the stop screw by turning it counterclockwise. Rotate the spacing crank counterclockwise until the desired amount of adjustment is shown in the display. Turn the adjustment screw clockwise until you can feel it stop. Re-zero your display.

## Adjusting Spacing Crank Tension

If you would like to add more or less tension to the spacing crank screw, turn the spacing crank counterclockwise from the zero position to approximately .600". You will see a small Allen screw in the hole located directly in front of the vise (toward the user). Insert an Allen wrench in the hole and tighten or loosen the screw based on your preferences. You will have to remove the Allen wrench before "checking" the tension. See figure 3 below for the hole location.



**Figure 3**

## Changing The Cutter

Cutter changes are easy on the FRA-2D machine. When you need to change a cutting wheel, unplug the machine from its' power source. Rotate the cutter by hand until you can see the small hole to the left of the cutter. Insert an Allen wrench or screwdriver to hold the spindle in place and loosen the lock nut with a 9/16" wrench. Remove the cutter and washer and slide the cutter off of the spindle. Install the new cutter (if the cutter has a counterbore in it, make sure the counterbore goes towards the spindle). Install the washer and lock nut and snug up the lock nut. Do not over tighten the nut!

## Support Information For Your #2D Code Machine

You can reach us in a variety of ways. If you have general questions about your machine, you can call or e-mail us. If you need help adjusting the machine, you will need to contact us by phone, as adjustment information is not easily relayed via e-mail. Always feel free to contact us with any questions or concerns you may have regarding your machine, we pride ourselves on excellent customer service!

Our contact information is as follows:

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 Fax: 989-354-4238  
 Website: [www.framon.com](http://www.framon.com)  
 E-mail: [support@framon.com](mailto:support@framon.com)

Our office is open from 8:00 am until 4:30 pm Monday through Friday, Eastern Time.

Thanks again for choosing our products!

## Cam / Cutter / Vise Application Chart

MANUFACTURER	SPACE CAM	DEPTH CAM	REC. CUTTER	WISE	SUFFIX
Arrow	1	S	FC9045	1	AR
Best A-2	13	P	FC9054	2	B2
Best A-3	13	N	FC9054	2	B3
Best A-4	13	M	FC9054	2	B4
Corbin D,H,Z Sys 70	3	B	FC9054	1	CD
Corbin K,N Sys 70	3	D	FC9054	1	CK
Corbin X Sys 70	12	E	FC9054	1	CX
Corbin GH	4	X	FC9090	1	KW
Corbin 981	3	Y	FC9054	1	C9
Corbin Z Pre 70	3	Z	FC9054	1	ZC
Emhart	3	F	FC8615	1	EM
Falcon Standard	7	R	FC9090	1	FS
Falcon I-Core	13	P	FC9054	2	FI
Grundman (UK)	16	G	FC9051	1	GR
Kaba Peaks 140	15	P	FC9054	2	K4
Kaba Peaks 150	13	P	FC9054	2	K5
Kwikset	4	X	FC9090	1	KW
Kwikset Titan	14	X	FC9090*	1	KT
Lockwood	20	U	FC9045	1	LK
Master	9	L	FC9045	1	MS
Medeco Bi-Axial	6	T	FC8615	1	MB
Medeco Commercial	5	V	FC8615	1	MC
Medeco KeyMark	13	W	FC9054	3	MK
Sargent C,R,L	10	J	FC7863	1	SR
Sargent U,R,K,G,T,UT	10	H	FC7863	1	SU
Schlage (incl. Primus)	8	C	FC10031	2	SC
Schlage Tri-Ad	18	P	FC9054	2	ST
Weiser	7	R	FC9090	1	WE
Yale Pro-Key (UK)	22	O	FC9045	1	YP
Yale Standard	11	K	FC9045	1	YA

Vise #1 is the standard vise on the Framon FRA 2D. Vise #2 is Framon part number F2SH050 (Double sided vise for I/C & Automotive). Vise #3 is Framon part number F2SH065, KeyMark Vise.

\*Kwikset Titan requires a special cutter for making the first cut on each key. Framon part number is FC4590T.

To order accessories, use the following part numbers:

**Note: In the numbers below, “XX” should be replaced with the suffix shown in the last column.**

If you only need a space or depth cam, the part number is 2DXXSC (for space cams) and 2DXXDC (for depth cams).

If you need both cams, use part number 2DXX01

If you need both cams and a vise, use part number 2DXX02

If you need both cams and a cutter, use part number 2DXX03

If you need both cams, a cutter and vise, use part number 2DXX04.